

CLAIMS

1. A multi-speed transmission comprising:

an input shaft;

an output shaft;

5 first, second and third planetary gear sets each having first, second and third members;

said input shaft being continuously interconnected with a member of said planetary gear sets, and said output shaft being continuously interconnected with another member of said planetary gear sets;

10 a first interconnecting member continuously interconnecting said first member of said first planetary gear set with said first member of said second planetary gear set;

a second interconnecting member continuously interconnecting said second member of said first planetary gear set with said second member of said second planetary gear set;

15 a third interconnecting member continuously interconnecting said third member of said first planetary gear set with a stationary member, said third member of said first planetary gear set being different from said members interconnected with said input shaft and said output shaft, respectively;

20 a first torque-transmitting mechanism selectively interconnecting a member of said first planetary gear set with a member of said third planetary gear set;

a second torque-transmitting mechanism selectively interconnecting a member of said first planetary gear set with a member of said third planetary gear set, the pair of members interconnected by said second torque-transmitting mechanism being different than the pairs of members interconnected by said first torque-transmitting mechanism;

25 a third torque-transmitting mechanism selectively interconnecting a member of said second planetary gear set with a member of said third planetary gear set, the pair of members interconnected by said third torque-transmitting mechanism being different from the

pairs of members interconnected by said first and second torque-transmitting mechanisms, respectively;

30 a fourth torque-transmitting mechanism selectively interconnecting a member of said second planetary gear set with a member of said third planetary gear set, the pair of members interconnected by said fourth torque-transmitting mechanism being different from the pairs of members interconnected by said first, second and third torque-transmitting mechanisms, respectively;

35 a fifth torque-transmitting mechanism selectively interconnecting a member of said third planetary gear set with a member of said first planetary gear set, the pair of members interconnected by said fifth torque-transmitting mechanism being different from the pairs of members interconnected by said first, second, third and fourth torque-transmitting mechanisms, respectively;

40 a sixth torque-transmitting mechanism selectively interconnecting a member of said third planetary gear set with a member of said second planetary gear set, the pair of members interconnected by said sixth torque-transmitting mechanism being different from the pairs of members interconnected by said first, second, third, fourth and fifth torque-transmitting mechanisms, respectively; and

45 a seventh torque-transmitting mechanism selectively interconnecting a member of said first, second or third planetary gear set with another member of said first, second or third planetary gear set, or with said stationary member, the pair of members interconnected by said seventh torque-transmitting mechanism being different from the pairs of members interconnected by said first, second, third, fourth, fifth and sixth torque-transmitting mechanisms, respectively,
50 and said member interconnected with said stationary member being different from said members interconnected with said input and said output shaft, respectively;

 said torque-transmitting mechanisms being engaged in combinations of two to establish at least eight forward speed ratios and at least one reverse speed ratio between said input shaft and said output shaft.

2. The transmission defined in claim 1, wherein said first, second, third, fourth, fifth, sixth and seventh torque-transmitting mechanisms comprise clutches.

3. The transmission defined in claim 1, wherein said first, second, third, fourth, fifth and sixth torque-transmitting mechanisms comprise clutches, and said seventh torque-transmitting mechanism comprises a brake.

4. The transmission defined in claim 1, wherein planet carrier assembly members of each of said planetary gear sets are single-pinion carriers.

5. The transmission defined in claim 1, wherein at least one planet carrier assembly member of said planetary gear sets is a double-pinion carrier.

6. A multi-speed transmission comprising:

an input shaft;

an output shaft;

5 a planetary gear arrangement having first, second and third planetary gear sets, each planetary gear set having first, second and third members;

said input shaft being continuously interconnected with a member of said planetary gear sets, and said output shaft being continuously interconnected with another member of said planetary gear sets;

10 a first interconnecting member continuously interconnecting said first member of said first planetary gear set with said first member of said second planetary gear set;

a second interconnecting member continuously interconnecting said second member of said first planetary gear set with said second member of said second planetary gear set;

15 a third interconnecting member continuously interconnecting said third member
of said first planetary gear set with a stationary member, said third member of said first planetary
gear set being different from said members interconnected with said input shaft and said output
shaft, respectively; and

 seven torque-transmitting mechanisms for selectively interconnecting said
20 members of said planetary gear sets with a stationary member or with other members of said
planetary gear sets, said seven torque-transmitting mechanisms being engaged in combinations
of two to establish at least eight forward speed ratios and at least one reverse speed ratio between
said input shaft and said output shaft.

7. The transmission defined in claim 6, wherein a first of said seven torque-
transmitting mechanisms is operable for selectively interconnecting a member of said first
planetary gear set with a member of said third planetary gear set.

8. The transmission defined in claim 6, wherein a second of said seven
torque-transmitting mechanisms is operable for selectively interconnecting a member of said first
planetary gear set with a member of said third planetary gear set, the pair of members
interconnected by said second torque-transmitting mechanism being different from a pair of
5 members of said planetary gear sets interconnected by a first of said seven torque-transmitting
mechanisms.

9. The transmission defined in claim 6, wherein a third of said seven torque-
transmitting mechanisms is operable for selectively interconnecting a member of said second
planetary gear set with a member of said third planetary gear set, the pair of members
interconnected by said third torque-transmitting mechanism being different from pairs of
5 members of said planetary gear sets interconnected by a first and a second of said seven
torque-transmitting mechanisms, respectively.

10. The transmission defined in claim 6, wherein a fourth of said seven torque-transmitting mechanisms is operable for selectively interconnecting a member of said second planetary gear set with a member of said third planetary gear set, the pair of members interconnected by said fourth torque-transmitting mechanism being different from pairs of
5 members of said planetary gear sets interconnected by a first, second and third of said seven torque-transmitting mechanisms, respectively.

11. The transmission defined in claim 6, wherein a fifth of said seven torque-transmitting mechanisms is operable for selectively interconnecting a member of said third planetary gear set with a member of said first planetary gear set, the pair of members interconnected by said fifth torque-transmitting mechanism being different from pairs of
5 members of said planetary gear sets interconnected by a first, second, third and fourth of said seven torque-transmitting mechanisms, respectively.

12. The transmission defined in claim 6, wherein a sixth of said seven torque-transmitting mechanisms is operable for selectively interconnecting a member of said third planetary gear set with a member of said second planetary gear set, the pair of members interconnected by said sixth torque-transmitting mechanism being different from pairs of
5 members of said planetary gear sets interconnected by a first, second, third, fourth and fifth of said seven torque-transmitting mechanisms, respectively.

13. The transmission defined in claim 6, wherein a seventh of said seven torque-transmitting mechanisms is operable for selectively interconnecting a member of said first, second or third planetary gear set with another member of said first, second or third planetary gear set, or with said stationary member, the pair of members interconnected by said
5 seventh torque-transmitting mechanism being different from pairs of members of said planetary gear sets interconnected by a first, second, third, fourth, fifth and sixth of said seven torque-transmitting mechanisms, respectively, and said member of said first, second or third

planetary gear set interconnected with said stationary member by said seventh
torque-transmitting mechanism being different from said members interconnected with said input
10 shaft and said output shaft, respectively.

14. The transmission defined in claim 6, wherein planet carrier assembly
members of each of said planetary gear sets are single-pinion carriers.

15. The transmission defined in claim 6, wherein at least one planet carrier
assembly member of said planetary gear sets is a double-pinion carrier.